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ACCOUNTABILITY
FOR
SOCIAL SERVICE DELIVERY
SYSTEMS

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OBJECTIVE

The objective of this study is to develop a practical method for the introduction of accountability into a Social Service Delivery System. Although developed for Title XX of the Social Security Act, the procedures are entirely generalized.

INTRODUCTION

And cast ye the unprofitable servant into outer darkness: there shall be weeping and gnashing of teeth. Matthew 25:30

The concept of accountability should not be considered to be a completely recent development. This basic concept has been in existence at least from Christ's time. Evidence of this can be found in Christ's parable of the talents (Matthew 25:14-30). In this parable a man gave his three servants certain assets to manage while he traveled in another land. He gave five talents to the first, he gave two talents to the second, and he gave one talent to the third. When he returned from his trip, he asked for a review of the assets. The first servant used the asset productively and not only returned the original five talents but five more. The second also used the assets productively and returned the original two talents and two more. The last servant instead of using the assets productively buried the talent while the man was away and returned only the original talent on his return. The man then took the talents from the unproductive servant and divided them between the productive servants.

This parable illustrates a review of the operations conducted at the end of a certain time period. The profitable managers are rewarded for their outputs, but the unprofitable manager was reduced to weeping and gnashing of teeth because of his lack of output.

This review at the end of the time period is only one of the distinct phases in the accountability cycle. Those three phases are as follows:

(1) Planning and Budgeting - In this phase the responsible manager presents program objectives. If the program objectives are approved by the top management a budget for this project is presented. This budget represents planned program inputs committed to accomplish the objective or output during a particular time period. The budget is a balance of program input against desired program outputs. If this budget is approved, the manager has assumed a responsibility to carry out the program specified in the budget.

(2) Control - In this phase the responsible managers monitors and controls the program progress. When required, the manager makes program changes necessary to accomplish program objectives.

(3) Review - In this phase top management reviews the program inputs and outputs. Productive program are rewarded by continuation and increased resources. Unproductive program face potential cancellation.

And the cycle begins again. The results of the program review and analysis forms a basis for the next commitment of inputs.

This study develops a practical method to introduce accountability into a Social Service Delivery System. The study is divided into the following three points:

(1) Cost Concepts Applied to Social Service Delivery Systems - This section applies general cost concepts to a social service delivery system and sets forth the cost

assumptions and cost definitions, including indirect cost and direct cost;

(2) Standard Cost Systems Applied to Social Service System - This section develops a mechanism for program accountability;

(3) Standard Cost System Procedures - This section develops actual procedures for the standard cost system. These procedures are presented as a logical whole that focuses on the organization. As the program manager proceeds through the indirect cost allocations and sampling allocation, he should not feel disheartened that all of these procedures will be added to his Title XX administrative burden. In actuality many of these procedures are presently being accomplished by various members of the organization because of existing federal program regulations. These procedures are designed to minimize additional procedures.

COST CONCEPTS APPLIED TO SOCIAL SERVICE DELIVERY SYSTEMS

MANAGEMENT SUMMARY

The objective of this section is to develop concepts of program accountability as applied to social service delivery systems. This section considers the organizational framework and defines the concepts of indirect cost and direct cost. Finally, these cost concepts are used to define a unit cost for each type of service.

Program accountability, as developed here, is accountability in the broad sense, i.e. accountability for program results to clients, program managers, administrators, the public, as well as accountability for federal reporting.

Program accountability should provide meaningful cost information about the Department's Title XX Social Service delivery system. The costs analysis will proceed in the following sequence:

(1) Administrative level;
(2) Program/Bureau level;
(3) Client Service level.

The analysis will distribute costs from the Administrative level to the Program or Bureau level by utilizing the existing indirect cost allocation plan that complies with the Federal Office of Management and Budget requirements as set forth in 45 CFR Part 74 Subpart Q Appendix C [called the Cost Allocation Plan (CAP)].[1]

---

[1] Utilization of the existing Cost Allocation (CAP) plan, not only limits an additional work load, but also permits increased accountability through periodic reconciliation of th reporting system with the Cost Allocation plan and Expenditure Reports (OA-41s). This self checking is an efficient self-audit procedure.

the Program or Bureau level will be allocated to the Client Service level by a time accounting according to the cost characteristics of the particular service.

The generalized organizational structure is given in Fig. 1.1.

GENERAL ORGANIZATION STRUCTURE

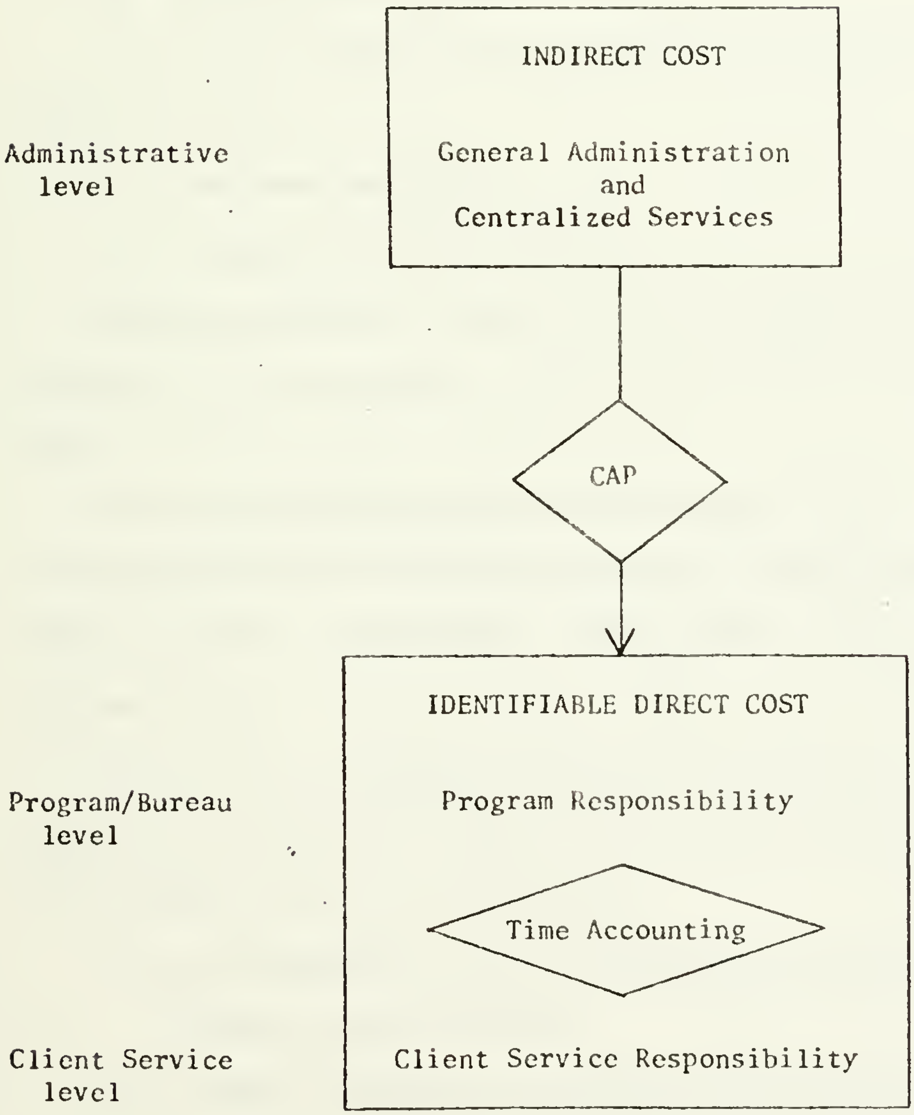


Fig. 1.1

At the administrative level, expenditures are not identified according to program or service type (indirect cost type). At the Program or Bureau level expenditures are classified according to major program areas[2] such as the following:

(1) Social Services (SS);

(2) Developmentally Disabled (DD);

(3) Child & Youth Development (YD).

At the Client Service level, services are delivered by one of the following methods:

(1) Department employees;

(2) Purchase of service contracts.

These two methods of service delivery exhibit different cost characteristics, and expenditures at this level reflect these cost characteristics.

The total program expenditures are program inputs. By this series of allocation the total program expenditures become associated with a specific type of Client Service. These types of Client Service are program outputs.

This process of matching program inputs and program outputs increases program accountability. Effective and efficient program administration will be aided because of the following:

(1) The expenditures and accomplishments of each service program will be available;

(2) Budget justification and planning decisions can be made

---

[2] In this example the number of program areas is limited to three. Appendix 1 contains Montana's program structure. No loss of generality will exist if the programs are expanded to accommodate more extensive or complex program structures.

on the basis of the same data set.

Informed judgment is required for proper application of the above process. This increased accountability can only be accomplished by a full understanding of its logical constructs. Cursory knowledge of its structure will promote inappropriate program decisions and improper allocation of the limited resources.

The next section defines the total cost of each type of service. Many individual units of service will be delivered. This total cost of each type of service should be the sum of the cost of all these units of service. Intuitively a cost per unit of service could be defined as the total cost of a particular service divided by the number of units of service. This is done in the UNIT SERVICE COST ANALYSIS section.

TOTAL COST OF EACH TYPE OF SERVICE

Expenditure records are not prepared for each individual unit of service delivered. Instead expenditures are recorded by identified program structure. Total costs are accumulated by program.

In general, the total cost for any output product (for each service type in this case) is divided into an indirect (called Centralized Services in our case) and direct cost (see Fig. 1.2).

SIMPLIFIED COST MODEL

	SERVICE TYPE	COST
INDIRECT COST	1	IC_1
	2	IC_2
	:	:
	N	IC_N
TOTAL INDIRECT COST		TIC_{XX}

+

DIRECT COST	1	DC_1
	2	DC_2
	:	:
	N	DC_N
TOTAL DIRECT COST		TDC_{XX}

TOTAL COST	1	TC_1
	2	TC_2
	:	:
	N	TC_N
		TC_{XX}

Fig. 1.2

Indirect costs[3/] cannot easily be directly associated with the particular service type. In some cases the additional administrative cost of recording and accounting for the cost directly to a specific service[4/] is not economically justifiable. Indirect costs are also called burden or overhead costs. The terms are subject to the misinterpretation that the overhead or burden is non-essential to the delivery of services. However, these costs are an essential cost in the effective delivery of service. Perhaps the only major difference between indirect and direct cost is the degree of economy in accounting and recording the expenditures. Indirect costs are applied to the particular service type by a suitable allocation mechanism. This allocation is accomplished by accumulating all indirect costs and apportioning this total indirect cost among the various services.

Direct cost, on the other hand, can be easily and economically identified with the service type because a direct relationship exists between the expenditure and service type. This expenditure-service relationship allows the expenditures to be accumulated by identified program structure.

[3/] In Montana's case indirect costs are accumulated in a program identified as Centralized Service.

[4/] Social Welfare organizations are subject to much undeserved criticism because of overhead cost. The assumption is made that these are in some way wasteful expenditures. By way of counter example, few would disagree with the value of top management in a complex manufacturing organization such as an automobile company. In the Government sector, few critics would disagree with the necessary overhead expenditure for a Department of Highways. They recognized that the complexity of designing a highway system requires top level management and decisions. Yet in the complex social welfare environment certain critics suggest that there is little need for program administration.

The total cost for providing all services of type 1 equals the sum of all indirect cost of associated service type 1 plus all direct cost of associated with service type 1 or

$$TC_1 = IC_1 + DC_1$$

where TC_1 is total cost of service 1;

IC_1 is total indirect cost of service 1;

DC_1 is total direct cost of service 1.

The total cost of all programs funded under Title XX is the sum of the total cost of all services, or

$$TC_{XX} = \sum_{i=1}^{\text{All Services}} TC_i = \sum_{i=1}^{\text{All Services}} (IC_i + DC_i)$$

Where TC_{XX} is total cost of all Title XX services;

TC_i is total cost of service i;

IC_i is total indirect cost of service (allocated);

DC_i is total direct cost of service i.

The complexity of the cost model increases when the allocation methods for indirect cost are introduced. Although the allocation methods should be inherently logical, many different equally justifiable methods can exist. Selection of the allocation method from the contenders may be arbitrary.

This jump in complexity for the cost model plus allocation is illustrated in Fig. 1.3.

COST MODEL WITH INDIRECT COST ALLOCATION METHOD

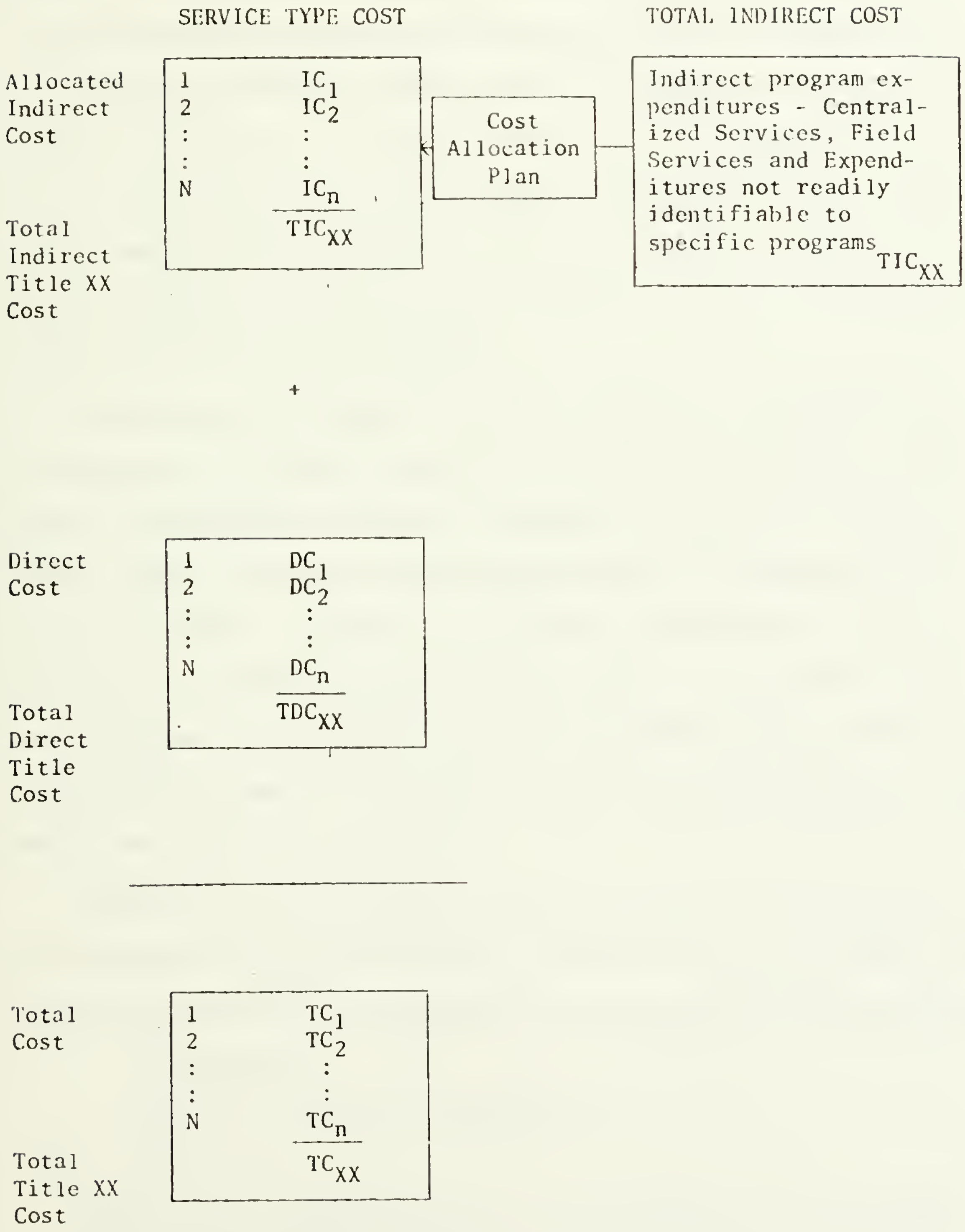


Fig. 1.3

This selections allocation mechanism is very important to program managers. The selection does have a critical effect on the budget justification process and the evaluation of a program's cost/effectiveness. Unfairly loading of indirect costs to a program can result in program cancellation due to an apparent high total program cost. This can occur at the same time that direct program cost are low. The program manager must be prepared to explain and defend the total cost of his program even though he may have little or no control over the indirect cost portion of the program.

Additionally, the program cost might be subject to inappropriate cost comparison to similar programs in other departments or even other states. These inappropriate cost comparisons fail to fully isolate all program costs. Not only do these inappropriate cost comparisons fail to fully allocate or isolate all the indirect or administrative costs, but they may even fail to isolate much of the direct costs associated with a program. The program manager must understand the cost model so that he will be capable of defending a program against such unsophisticated and ill-considered cost comparison.[5]

Indirect cost are allocated to the service type by the methodology in the Department Cost Allocation plan. In this model the total indirect program expenditure (TIC) are allocated to the service types and the equality

$$\sum_{i=1}^{\text{All Services}} IC_i = TIC_{XX} \text{ is preserved.}$$

---

[5] The job of a program manager is not an easy one. Not only must he be knowledgeable about his program, but he must be able to apply the methods of cost analysis used by other agencies. Certain program evaluators may not fully understand the basic cost accounting concepts. The program manager must then analyze the inappropriate cost comparison and explain them to the evaluator.

The total expenditure of Title XX (TC_{XX}) can be viewed alternately as any of the following:

(1) The total cost of Title XX (TC_{XX}) is equal to the sum of all indirect and direct cost of each service type

$$TC_{XX} = \sum_{i=1}^{\text{All Service}} (IC_i + DC_i);$$

(2) The total cost of Title XX (TC_{XX}) is equal to the sum of the total cost of each service type

$$TC_{XX} = \sum_{i=1}^{\text{All Service}} TC_i;$$

(3) The total cost of Title XX (TC_{XX}) is equal to the sum of the total direct cost (TDC_{XX}) and the total indirect cost (TIC_{XX})

$$TC_{XX} = TDC_{XX} + TIC_{XX} .$$

The specific allocation method selected for the department's Cost Allocation plan is based on wages and salary of direct workers at bureau level. This is justified by the rationale that most of the centralized services furnished are most easily associated with employee related transactions (i.e. payroll, personnel transaction, and accounting transactions).

The complexity of the cost model Fig. 1.3 expands because of the actual operation of the department. The department delivers services in addition to Title XX and at the bureau/program level delivery a set of service types. This increased complexity is presented on Fig. 1.4

The services in addition to the Title XX services are as follows:

(1) Food Stamps;

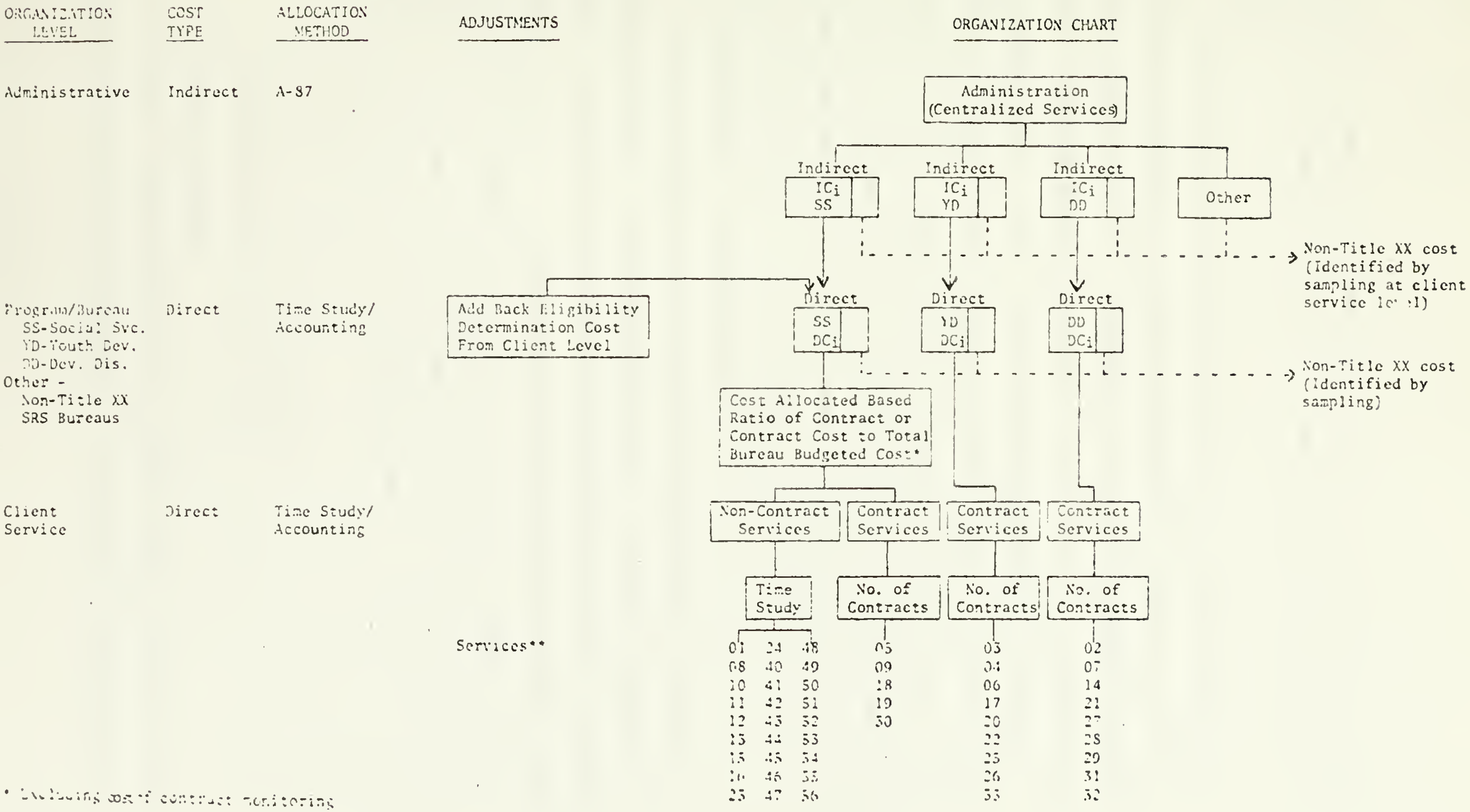
(2) General Assistance (money payments and medical).

(3) Runaway Youth

(4) Child Welfare

Fig. 1.4

SOCIAL SERVICE COST MODEL



* Including cost of contract monitoring

**Service numbering scheme from Appendix 1

The indirect costs are divided between Title XX and non-Title XX programs by statistical sampling at the client service level (explained more fully later).

The next step is the allocation of the direct costs which by our definition of direct cost includes program/bureau level cost and the client service level cost. Although these costs are directly identifiable by the major program type, direct costs must still be identified by the service type. This is a joint costing problem because the same employee delivers a set of services within a program. Direct cost are allocated by time studies conducted at the client service level. This time study is either based on statistical sampling for department employees or 100% time analysis supplied by vendors billing (for services provided by purchase of service). This methodology defines DC_i (the direct cost for service type i as previously defined).

Figure 1.4 illustrates the conceptual development of the Social Service Cost Model. The organization levels are labeled. Reviewing the model, it should be observed that the administrative level is exclusively indirect cost type. According to our definition the direct cost elements cost consist of both the program/bureau level and the client service level. Proceeding from the top down, all indirect administrative costs are allocated to the following program/bureau:

(1) Social Services (SS);
(2) Child & Youth Development (YD);
(3) Developmentally Disabled (DD);
(4) Other Bureaus.

Only the first three contain Title XX funds. However, the first three contain some non-Title XX funds which are identified as food stamps or

general assistance. These are excluded from further consideration. The remaining allocated indirect costs within each of the three bureaus are divided among the service types by sampling at the client service level. The indirect cost will retain its indirect character as it proceeds to the allocation to the individual service type.

The direct costs of the program/bureau level are identified by the following program:

(1) Social Services;

(2) Child & Youth Development;

(3) Developmental Disabilities.

The costs are divided among the various services at the client service level. Basically, the cost are allocated by the time study or time accounting. The general mechanism is slightly complicated because of the two manners of service delivery. Services can either be delivered by department employees or by vendors under purchase of service contracts. For programs having services delivered only by vendors, the costs indirect cost and direct cost from the program level are allocated to the services by an allocation scheme based on the ratio of the number of contracts of that type of service to the total number of contracts managed by that bureau. The direct cost of the contract is added to this allocated direct cost. For programs having department employees delivering services, the indirect cost and the direct cost from the service level are allocated to the service by a statistical sampling of the work load of the department's service providers. These allocation schemes were agreed upon by the program manager.

Another slight complication occurs in connection with the services delivered by the Social Service (SS) Bureau. In addition to delivery of

services, the department employees at the client service level determine eligibility for services. This cost of eligibility determination is isolated by the statistical sampling and is added back to the direct cost at the program level. These cost must be allocated between non-contract and contract service type. This allocation is accomplished by dividing the cost between non-contract and contract services on the basis of the ratio of budgeted non-contract costs to total budgeted social service program cost or budgeted contract cost to total budgeted social service program cost respectively. This allocation scheme was decided upon by the social service bureau as a fair method of allocation.

Below this allocation the social services indirect cost and direct cost from the program level are allocated to each type of services delivered by department employees by the results of the statistical sampling and to each services delivered by vendors by the ratio of the number of contract of that service type to the total number of contract managed by the social service bureau. Again, this allocation scheme was approved by the social service bureau.

UNIT SERVICE COST ANALYSIS

After the indirect and direct costs of each service type are defined, the cost of a unit of each service is defined. The procedure is quite straight forward compared to the above analysis. It proceeds in the following manner:

(1) Define a unit of service for each service type - examples, a day of day care, a family planning consultation, etc. If the service type consists of multiple objectives (service sub-types), a unit of service must be defined for each objective;

(2) Find the number of units of service planned (budgeted) under the current Title XX plan. For multiple objectives find the number of units of service for each subobjective;

(3) Divide the number of units of service into the indirect cost of each service type. For multiple objectives the total indirect cost of each service type must be divided among the objectives. This division between subobjectives can be an arbitrary equal cost division unless a suitable alternative assumption exists. This should be done by the responsible program managers;

(4) The previously defined direct cost from the program/bureau level and the client service level should be handled in the same manner as the indirect cost. Each of these direct costs is then divided by the number of units of service. The total unit service direct cost is from the sum of both program level direct unit cost and client service level direct unit cost.

The above procedure defines the unit cost as an average function. This average unit cost is defined to be a standard unit cost in a standard costing system. In a standard costing system a standard cost for each product is calculated based on budget estimation and estimate production units. Each product produced is reported at the standard cost. The standard cost unit is composed of standard direct unit cost and standard indirect unit costs. As time proceeds the cost for n units of production for product i is assumed to be equal to the following:

The cost of n units of product_i = n x standard unit cost for product_i. The total products cost for a product line (i.e. in this case the total Title XX program) is the sum of over all products of the number of units of each product times the standard cost of that product or total cost of product line =

$$\sum_{i=1}^{\text{All products}} n_i \text{ x standard cost for product}_i$$

As stated, this standard is based on estimated or budgeted cost. In our case, the cost of a service is reported at standard cost when delivered.

At the end of a particular budget period the differences between the cost estimated by standard cost (based on budget) and actual expenditures are analyzed. These differences are called variances. Such a procedure is called an analysis of variance and is a well established industrial cost accounting procedure. The technique is explained more fully in the following section. In this application, the standard costing system provides a framework of analysis for planning and budgeting, control, and review required by Title XX.

STANDARD COST SYSTEM
APPLIED TO SOCIAL SERVICE SYSTEM

BACKGROUND

The objective of this section is to apply the concepts of a standard cost system to a social service delivery system. Charles T. Horngren[6/] describes the nature of a standard costs accounting system as the following:

> Standard costs are carefully predetermined costs; they are target costs, costs that should be attained. Standard costs help to build budgets, guage performance, obtain product costs, and save bookkeeping costs.
>
> A set of standards outlines how a task should be accomplished and how much it should cost. As work is done, actual costs incurred are compared with standard costs to reveal variances. The variances are investigated to discover better ways of adhering to standards, of altering standards, or of accomplishing objectives.
>
> Consider the following example. If the standard cost of material for a garden tool is 50¢ per unit, then superior or inferior performance may be judged by comparing incurred costs with standard costs. If the incurred cost happens to be 60¢, then the 10¢ variance may be analyzed and investigated to discover reasons for the variation. ...[T]he difference may be due to price changes, shoddy materials, faulty workmanship, and so forth. The important point at this stage is that an evaluation of performance depends on a comparison of actual costs with some stable goal.

PRODUCT COSTING

What does it cost to deliver a unit of a certain social service? This is a question of product costing. In this case the product or output is a unit of social service. In a standard costing system,

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[6/] Charles T. Horngren, Cost Accounting: A Managerial Emphasis, Prentice Hall; Englewood Clif, NJ, 19[illegible]; p. 187.

a standard unit cost is developed before the unit is produced. This standard cost is what a product should cost to produce; an estimation based on an analysis of previous cost experience and projection of future costs. It is an attainable target cost. As the units are produced, their costs are reported at this standard cost.

Intuitively, this process of recording of production of standard cost seems somewhat disturbing. Why not record the production at actual cost? First, no one knows what a unit of service costs at the moment it is delivered. A unit of social service is not an off-the-shelf item. The actual cost of a unit of social service cannot be uniquely defined. Instead, the costs incurred in the delivery of a unit of social service are defined on the basis of a complex set of approximations, averages and arbitrary allocations as was seen in the last section after the units of services are delivered. The information necessary to define these costs is not accumulated on a unit by unit basis. Instead these costs are accumulated on a program basis over a period of time. Currently, this period is quarterly for the Expenditure Report (OA-41) and the Cost Allocation.

Secondly and more importantly, the purpose of the standard cost system is to increase program accountability. Program accountability should focus on planned program outputs as compared to actual program inputs. The program manager's action of specifying what a unit of service should cost establishes a target to measure his performance against. Periodically a comparison is made of actual program expenditures (program inputs) and total program cost reported at standard cost (planned outputs). The difference between the two figures is

analyzed and explained. The difference is called a program variance. The formula is as follows:

$$\begin{matrix}\text{PROGRAM} \\ \text{VARIANCE}\end{matrix} = \begin{bmatrix}\underline{\text{INPUTS}} \\ \text{ACTUAL PROGRAM} \\ \text{EXPENDITURES}\end{bmatrix} - \begin{bmatrix}\underline{\text{OUTPUTS}} \\ \text{REPORTED AT} \\ \text{STANDARD COST}\end{bmatrix}$$

By the convention presented here, a negative program variance is called a favorable variance. Thus a negative variance would result if the actual cost to deliver the unit of service was less than the budgeted cost.

The program variance also reconciles the output cost recorded at standard cost to the program expenditures reported on the quarterly OA-41. This occurs because the actual program expenditure is the same amount that appears on the OA-41 and the expenditure is identified with the total service given in that period.

STANDARD COST IN ACCOUNTABILITY CYCLE

The phases of accountability cycle were previously defined to be the following:

(1) Planning and Budgeting;

(2) Control;

(3) Evaluation.

The standard cost system is used in each phase to increase program accountability by emphasizing the distinction between planned program outputs and actual program inputs. The conceptualized sequence of events is given in Fig. 1.5.

Fig. 1.5

SEQUENCE OF EVENT
IN ACCOUNTABILITY CYCLE

	OUTPUTS	INPUTS
PLANNING	● NEEDS ANALYSIS - A projected service demand is projected based on client statistics, professional judgment and social research.	
	● OBJECTIVES - The projective service demand is translated into a number of units of services.	
	● PLAN APPROVAL - The Title XX Plan is approved.	
BUDGETING	● BUDGET SUBMITTAL - A budget is prepared on the basis the planned number of units times the standard unit cost.	
	● BUDGET APPROVAL - The budget is reviewed on the basis of planned objectives.	
	● RECORDING - The cost of each service delivered is reported at standard cost as delivered.	● RECORDING - The actual expenditures are recorded as paid.
	● REPORTING - Cost reported at standard cost are compared to actual expenditures (analysis of variance).	● REPORTING - Actual program expenditure are compared to cost returned at standard cost.
	● ADJUSTMENTS - Changes in program are made based on the above analysis.	
	● EVALUATION - The planned objectives are compared with actual program outputs.	● EVALUATION - New standard costs are determined based on actual program expenditure and project program costs. This standard cost is used in the next planning and budget phase.

STANDARD COST SYSTEMS PROCEDURES

The objective of this section is to specify understandable procedures for a standard costs system which will minimize the additional staff work load. These procedures will be divided into the following two time frames.

UNIT OF SERVICE CONCEPT

Each type of client service has a uniquely defined unit of service. The unit of service is an identifiable, discreet, logically related set of activities related to a client's need. The initial definition of this set of services was the responsibility of the program manager.

The process of defining a standard cost for the units of service depends on the cost characteristics of the method of service provision. In our case a service can be provided by either of the following methods:

(1) Contract or purchase of service agreement;

(2) By department personnel.

In the purchase of service case the standard cost is the total program cost of that particular service, as defined in the section TOTAL COST OF EACH TYPE OF SERVICE, divided by the number of units of that particular service delivered.

Briefly, this is the total indirect cost allocated to that service plus the total program level direct cost allocated to that service

plus the total contract cost for that service divided by the number of units of service.

In the case of service delivered by department personnel, a more detailed analysis is required. The standard unit cost is equal to the product of a standard time times a dollar value per unit of time. The health care industry was chosen as a model for the development of a unit of service concept. The health care industry has developed a coding structure for each service or procedure it provides. This structure is based on relative value unit (RVU) concept which is a standard time for the accomplishment of a particular procedure. Such services could be an appendectomy, brief examination, etc. A medical doctor reviews the patients needs and prescribes a service or procedure. These services or procedures are logically defined to include all the normal requirements associated with a patient's particular need. For example a surgical operation includes the sewing up the patient. The appendectomy is billed to the patient at standard cost which is equal to RVU times a value of the doctor's time such as $50 an hour. It does not matter that the operation actually took 30 minutes more or 30 less than the standard time. The patient is billed at this pre-determined standard cost. The doctor records his activity by procedure. They do not keep logs of each minute of the day.[7]

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[7] Total time recording has the appearance of accuracy but may not have the substance of accuracy. Professionals find the keeping of extensive logs to be a burdensome task that detracts from client service. The accuracy deteriorates the requirement of recording increases because they find ways to accommodate the burden. Pschologically the service providers are resentful of these recording mechanisms unless they can be associated with better service to the client. Recording the procedure, instead of 100% time recording, gives the professional a sense of accomplishment and the recording efforts is reduced because it is associated directly with the client service function.

The initial role of the service provider is similar to the doctor. The service provider prescribes a series of procedures or services. When the client receives the service, the unit of service is recorded. Certain services were well defined. For instance the unit of day care was defined as a day of day care. Other units of care such as adoption are more complex and less well defined. An adoption service could vary from 3 to 8 interval sessions. This apparent problem is similar to the variability of time in an operating room for a doctor. In the medical context the RVU was statistically defined for each type of procedure. A patient does not get billed because his appendix is particularly hard to remove. In the case of adoption, a statistical worker sampling defines the standard time for that procedure. The stability of that unit of time is tested at different times during the year when the unit time converges to a suitable estimate.

The procedures for defining a standard time for each of the services are as follows:

(1) A time study is conducted on randomly selected days. This study defines a typical social worker's eight hour day. This typical day consists of a certain fraction of the day of providing service A_1, a certain fraction of the day of service A_2 and so on for all A_M services, where the sum of the function of time for all services equal eight hours;

(2) For each of the A_M services, this fraction of the day is multiplied by the total number of social worker work days available in the organization in the budget

period. This gives the estimated total time spent in that period on that service;

(3) This estimated total time for each of the A_M services is divided by the total units of each of the A_M services in that budget period. This figures the standard time for that particular service, (standard time as a fraction of a day).

This standard time is conceptually identical to the RVU for the health industry.

The standard unit cost of indirect, program level direct, client service level direct cost for each of the A_M service is defined as follows:

(1) The total indirect cost, the total direct program level cost, and the total client service level cost for that budget period are allocated to the social service bureau. These costs are divided, respectively, by the number of social worker days available in the organization in that budget period. The figure of the following form will exist for indirect, program direct, and client service direct. This figure is the estimated daily cost of a typical social worker, $\left[\frac{\text{Cost}}{\text{Social Worker Day}}\right]$.[8]

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[8] This might seem cumbersome but this figure must only be calculated once each fiscal year for all social service and is the same for all social services. That is $\left[\frac{\text{Cost}}{\text{Social Work Day}}\right]$ is the same figure of all the services delivered by the social service in that budget period, only the standard time is a function of the service.

(2) The standard cost is then equal to standard cost for

$$\text{service } A_i = \left[\begin{array}{c}\text{standard time as fractured}\\ \text{day}\end{array}\right]_i \times \left[\frac{\text{Cost}}{\text{Social Worker Day}}\right]$$

Having independently defined both the standard time for each of the A_M service and an organizational wide standard cost (standard rate) for social workers time allows these two figures to be adjusted independently as the program changes. For example, assuming the service A_M standard times are statistically stable, deleting service A_2 and adding service A_{M+1} would require that a time study on A_{M+1} only. If the other standard times have stablized, then they do not require further time study analysis. Additionally these standard times are useful in work load analysis. These times are targets. The supervisor at the client service level can use these times to analyze work productivity and to plan budgets.

START-UP PROCEDURES

The start time frame will consist of the interval of time from October 1, 1975 to June 30, 1976.

START-UP TIME FRAME

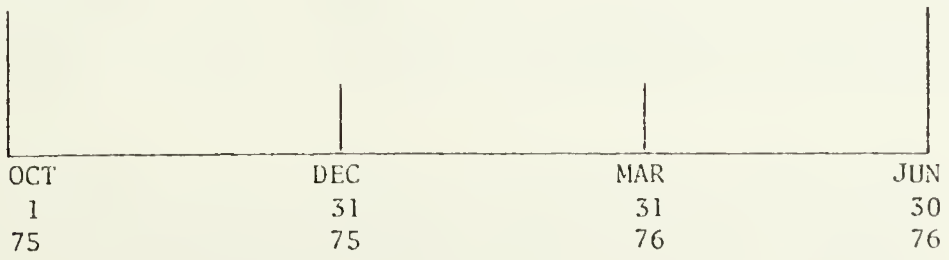

Fig. 1.6

This initial Title XX period represents a departure in the delivery of social service. As such, the program manager and administrators have limited experience with the estimation of target population, target location, service requirements and needs analysis. Additionally, the operational statistics of the services requested, and work load sampling were not available. This information for the initial Title XX plan was based on best-guess inputs from program managers and service professionals.[9/] The service professionals then define the service units appropriate for each service type. The number of units of service for each type of service was then estimated. Next an estimated allocation of the total Title XX costs was made for each service type. The estimated standard cost for each unit of service was calculated dividing the total period cost for each service by the estimated number of units of service in that period or the standard cost (SC) for service A_i is the following:

$$\frac{SC}{A_i} = \frac{(\text{Total period cost of service } A_i)}{(\text{Number of units of service of } A_i \text{ in the period})}$$

In addition to being consistent with the initial Title XX service plan, the standard cost system must be consistent with the Cost Allocation plan and the FFP Claim on the OA-41. Currently, the Cost Allocation is based on actual expenditure and submitted quarterly within 25 days of the quarters ending in March 31, June 31, September 30, and December 31. The cut-off

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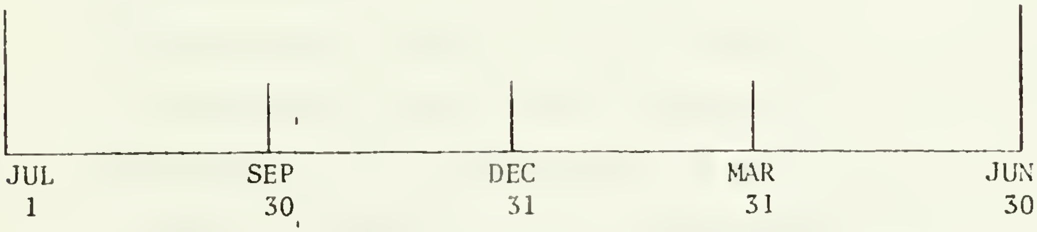
[9/] This procedure approximates the Delphi method. See Olaf Helmer and T. J. Gordon, "Report on Long Range Forecasting Study," Rand P.-2982 (1964). This procedure is well developed in industrial forecasting. The seeming informality of the Delphi procedure was designed to encourage inputs from the various organizational levels. This involvement in the forecasting process also creates a high degree of program commitment.

date of the quarterly Cost Allocation is the end of the above quarters. (The accrual difference occurs because of timing difference between the delivery of service and the reporting of certain of the cost associated with those services.) This difference is minimized because the cost accrued for this period but not encumbered for this quarter are approximately offset by the accrued costs of the previous period but included in the current report.

THE ONGOING SYSTEM

The ongoing system framework coincides with the state fiscal year as illustrated below:



The July 1 date coincides with the end of the state's fiscal year and submission of the past quarter OA-41. This is the time for review of the nine-month start-up operations. At this point the program managers will analyze variance (procedures in the following section) of the past fiscal period and set out the goal (output objectives) for their programs for the next fiscal period. The sequence of events on July 1 are as follows:

(1) An analysis of variance will be conducted (see next section);

(2) The number of units of service for the past period will be analyzed. Decision on the revision of the

number of units of service required will be made;

(3) The program structure will be evaluated. Services will be continued, discontinued, or initiated;

(4) The work sampling requirement will be reviewed. This review will modify the sampling plan and estimate the standard times as a fraction of day for each service as defined previously;

(5) The standard time as a fraction of day will be defined;

(6) The projected $\left[\dfrac{\text{Cost}}{\text{Social Worker Day}}\right]$ will be used to calculate the following:

(a) standard unit indirect rate;

(b) standard unit program level direct rate;

(c) standard unit client service direct rate.

(7) The standard cost for each service will be projected for indirect standard cost, direct program level standard cost, and client service level standard cost by the following:

$$\begin{matrix}\text{Standard Cost} \\ \text{For Service } A_i\end{matrix} = \left[\begin{matrix}\text{Standard time as} \\ \text{fraction of day}\end{matrix}\right] \times \left[\dfrac{\text{Cost}}{\text{Social Worker Day}}\right]$$

(8) In the case of services provided under purchase of service, the procedure is the same with the exception that projected budget figures and the June 30 Cost Allocation are used.

The sequence of events for the quarter ending September 30, December 31, and March 31, included the following:

(1) Analysis variance on a year-to-date basis;

(2) Modify the Title XX service plan;

(3) If plan modification is not major, forget redefinition of standard cost with the exception of new services. Standard cost of new services will be estimated or best guess.

ANALYSIS OF VARIANCE

The objective of the analysis of variance procedure is to increase the program manager's accountability for program performance. The procedure actually begins during the previous budget period. At this time the program managers submit budgets for their respective programs. These budgets are complex products of the program managers evaluation of the program needs, target population, delivery cost, indirect costs, estimates, etc. Program objectives are then set.

From this point, the managers are then asked to create a program budget required to meet the above objectives. Since the program manager is to be accountable for program results, the program manager should be very realistic in his budgeting. At the end of the budget period, the program manager explains differences between budgeted or projected performance and actual expenditure or actual performance.

This procedure involves the program manager throughout the program cycle. Initially, the budget is based on his professional analysis of needs, target groups and attainable program objectives. The program manager is committed to budget control because the success of the program will be evaluated accordingly. Classically the evaluation of program performance is divided into an efficiency measure (a cost measure) and an effectiveness measure (a volume measure).

The analysis of variance procedure can be illustrated by the following simplified example. Assume the following fact situation:

(1) The total budgeted cost to provide service A is $100 per year;

(2) The number members in the estimated target group is 10;

(3) Each member needs a unit of A per year, i.e. 10 units of service is the program objective.

The program manager has participated in the budget and estimated the number in the target group. From this knowledge, he has set the program objectives (number of units of service to be delivered).

From the example the standard unit cost per service is $10.00 developed as follows:

$$\frac{\$100 \text{ program cost}}{10 \text{ Actual unit of service}} = \underline{\$10.00 \text{ standard unit cost}}$$

After the completion of a program cycle, the actual expenditure for 10 unit of service was $110. This means that the actual expenditure for each unit of service exceeded the standard by $\underline{\$1}$ (i.e. $\frac{110 - 100}{10}$). This focuses the program managers attention on the $1 increase in program cost per unit. What caused it? Should the next year's budget be adjusted to reflect a cost increase? Assume the program manager isolates the $1 increase (an unfavorable variance) in program cost to a $10 increase in utility cost. This variance was beyond the program managers control, and this increased cost should be reflected in the next budget cycle. This type of variance is a price variance.

Again returning to the same fact situation, assume that the budgeted program cost equals the actual program expenditures (i.e.

actual program expenditures equal $100), but only 9 unit of service were given. The cost accounting system will record the program cost at standard cost to be $90 developed as follows:

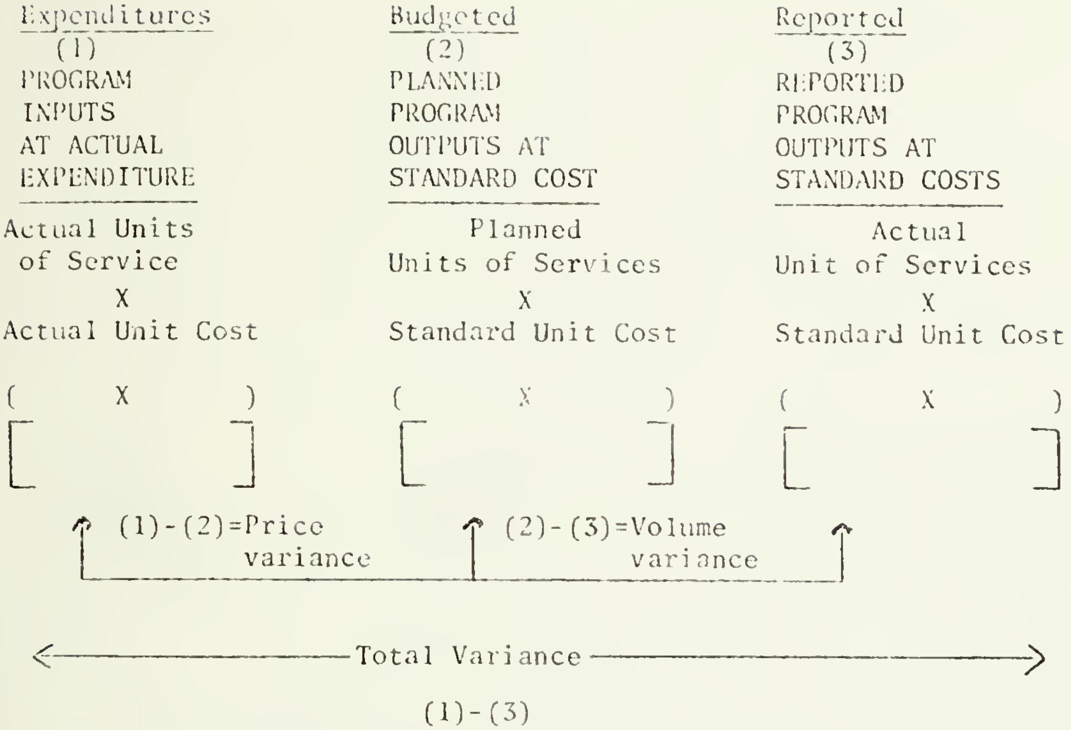
9 unit X $10 standard unit cost = $90

This $90 is what 9 unit of service should cost in the best of all possible worlds where actual equals budget. Since it actually cost $100 to deliver these services, a positive or unfavorable variance of $10 again exists. This must be analyzed by the program manager. In this case assume that the $100 actual expenditure was the result of fixed cost (not a function of the number of unit of service delivered). Annual rent under a firm contract could be an example of period fixed cost. The rent is not dependent on the number of clients served. Since the program manager has little control over this expense, the variance could be explained by pointing to the fact that the volume of service does not affect the fixed changes. This is an example of a volume variance.

Suppose that the situation exists that actual expenditure was $110 and the actual number of services given was 9. How does one separate the effects of the price and volume variances?

The separation of price and volume[10/] variance is accomplished by filling in the following :

[10/] The definition of volume variance presented here differs from the definition used in industry. The purpose of this definition is to encourage effective and efficient program planning. This differs from the industrial concern with material usage. The objective here is to focus the program manager's attention on reaching target objective (effectively delivering the target number of services) and containing program costs (efficient program management). The modified analysis of variance procedure forces the manager to examine the program cost and service performance. This is not intended to be a "gotcha" system for incorrectly placing the responsibility on the program manager for things beyond his control. The program manager is however responsible for analysis of the program performance.



Expenditures
(1)
PROGRAM
INPUTS
AT ACTUAL
EXPENDITURE

Actual Units
of Service
X
Actual Unit Cost

(X)

Budgeted
(2)
PLANNED
PROGRAM
OUTPUTS AT
STANDARD COST

Planned
Units of Services
X
Standard Unit Cost

(X)

Reported
(3)
REPORTED
PROGRAM
OUTPUTS AT
STANDARD COSTS

Actual
Unit of Services
X
Standard Unit Cost

(X)

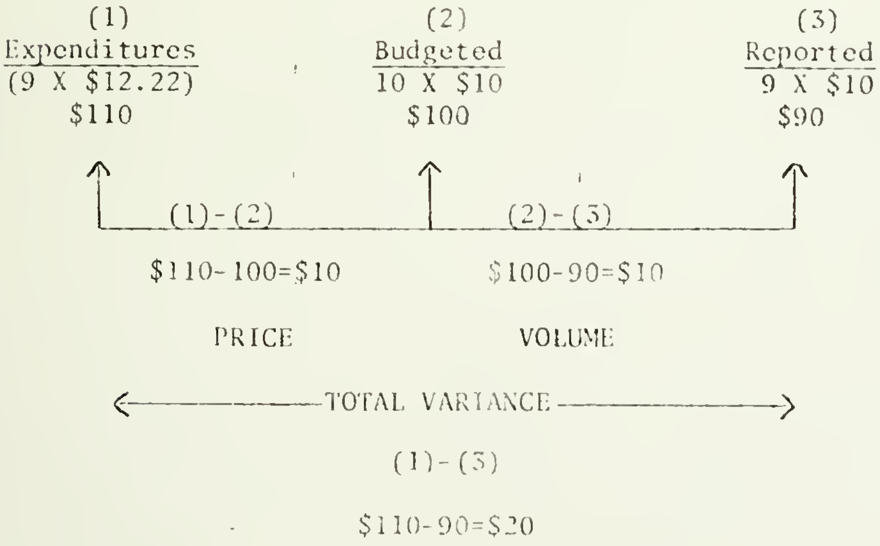
(1)-(2)=Price variance

(2)-(3)=Volume variance

Total Variance

(1)-(3)

In our example this becomes the following:



(1)
Expenditures
(9 X $12.22)
$110

(2)
Budgeted
10 X $10
$100

(3)
Reported
9 X $10
$90

(1)-(2)
$110-100=$10
PRICE

(2)-(3)
$100-90=$10
VOLUME

TOTAL VARIANCE

(1)-(3)

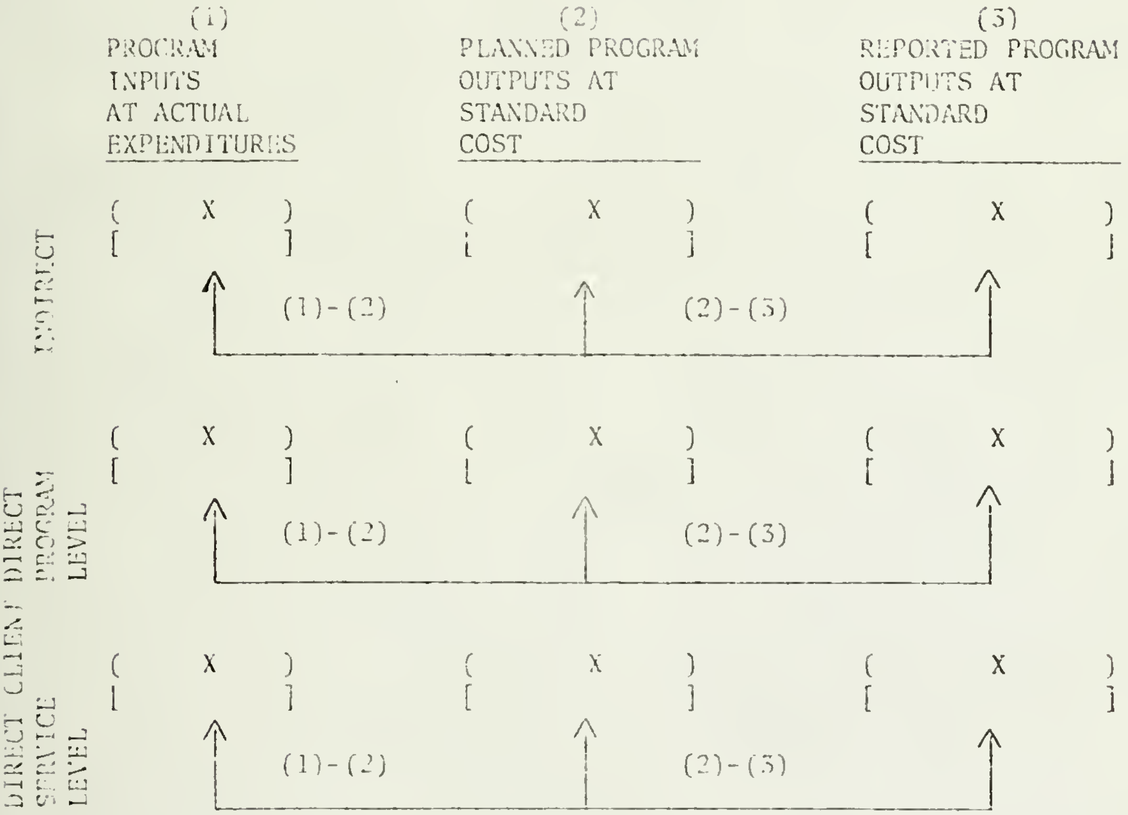
$110-90=$20

This difference in definition between the governmental manager and industrial manager reflected in the different operational environment in which they work. The governmental manager often has far less control over his environment. The official must comply with legislation on program administration. He cannot change programs quickly if at all. This legal compliance is extended to the budget. The governmental manager capability to change the budget is also very limited. Public employment is also very stable. In essence, the governmental manager has far less discretion for making quick program changes. With this difference in mind, this definition is designed to focus the managers attention on those program areas which can be controlled or influenced.

The attention now focuses on the explanation of a $10 price variance and a $10 volume variance, both unfavorable.

The above example considers the total cost of each program

The analysis of variance is actually performed on the bases of indirect, direct program level and direct client service level as follows:


(1)
PROGRAM INPUTS AT ACTUAL EXPENDITURES
(2)
PLANNED PROGRAM OUTPUTS AT STANDARD COST
(3)
REPORTED PROGRAM OUTPUTS AT STANDARD COST
INDIRECT
DIRECT PROGRAM LEVEL
DIRECT CLIENT SERVICE LEVEL
X
(1)-(2)
(2)-(3)

When the analysis is conducted on these three levels, the program manager can fine tune his focus on the cause of the variance. In some instances the program manager might not have direct control of indirect cost but now he can trace its effect on his program. This cost consciousness increases accountability.

FORM SPS-DP-13 A
(November 1976)

STATE OF MONTANA
DEPARTMENT OF SOCIAL AND REHABILITATION SERVICES

COST ANALYSIS INPUT

PROGRAM CODE	TYPE COST	REPORT DATE MMDDYY	FAC 1			INDIRECT COST	PROGRAM LEVEL	NON-CONTRACT	NUMBER OF SERVICES		
			Non-Contract	Contract					Non-Contract	Contract	
1-2 (2)	3	4-9 (6)	10-12 (3)	13-15 (3)		17-25 (9)	26-34 (9)	35-43 (9)	44-45 (2)	46-47 (2)	
	A										

PROGRAM CODE	TYPE COST	REPORT DATE MMDDYY	SERVICE CODE (Left Justify)	FAC 2	CONTRACT COST				UNITS OF SERVICE (Right Justify)
1-2 (2)	3	4-9 (6)	10-12 (3)	13-16 (4)	17-25 (9)				48-53 (6)
	A								

PROGRAM CODE	TYPE COST	REPORT DATE MMDDYY	SERVICE CODE (Left Justify)	FAC 2	CONTRACT COST				UNITS OF SERVICE (Right Justify)
1-2 (2)	3	4-9 (6)	10-12 (3)	13-16 (4)	17-25 (9)				48-53 (6)
	A								

PROGRAM CODE	TYPE COST	REPORT DATE MMDDYY	SERVICE CODE (Left Justify)	FAC 2	CONTRACT COST				UNITS OF SERVICE (Right Justify)
1-2 (2)	3	4-9 (6)	10-12 (3)	13-16 (4)	17-25 (9)				48-53 (6)
	A								

FORM SRS-DP-13 B
(November 1976)

STATE OF MONTANA
DEPARTMENT OF SOCIAL AND REHABILITATION SERVICES

BUDGET ANALYSIS INPUT

PROGRAM CODE	TYPE COST	REPORT DATE MMDDYY	PERCENTAGE FACTOR 1			INDIRECT COST	PROGRAM COST	NON CONTRACT	NUMBER OF SERVICES		
			Non-Contract	Contract					Non-Contract	Contract	
1-2 (2)	3	4-9 (6)	10-12 (3)	13-15 (3)		17-25 (9)	26-34 (9)	35-43 (9)	44-45 (2)	46-47 (2)	
	B										

PROGRAM CODE	TYPE COST	REPORT DATE MMDDYY	SERVICE CODE (Left Justify)	PERCENTAGE FACTOR 2 (Contract Only)	CONTRACT COST			RVU (Non-Contract Only)	UNITS OF SERVICE (Right Justify)
1-2 (2)	3	4-9 (6)	10-12 (3)	13-16 (4)	17-25 (9)			44-47 (4)	48-53 (6)
	B								

PROGRAM CODE	TYPE COST	REPORT DATE MMDDYY	SERVICE CODE (Left Justify)	PERCENTAGE FACTOR 2 (Contract Only)	CONTRACT COST			RVU (Non-Contract Only)	UNITS OF SERVICE (Right Justify)
1-2 (2)	3	4-9 (6)	10-12 (3)	13-16 (4)	17-25 (9)			44-47 (4)	48-53 (6)
	B								

PROGRAM CODE	TYPE COST	REPORT DATE MMDDYY	SERVICE CODE (Left Justify)	PERCENTAGE FACTOR 2 (Contract Only)	CONTRACT COST			RVU (Non-Contract Only)	UNITS OF SERVICE (Right Justify)
1-2 (2)	3	4-9 (6)	10-12 (3)	13-16 (4)	17-25 (9)			44-47 (4)	48-53 (6)
	B								

FORM SRS–DP–13 S
(December 1976)

STATE OF MONTANA
DEPARTMENT OF SOCIAL AND REHABILITATION SERVICES

STANDARD COST INPUT

PROGRAM CODE	TYPE COST	REPORT DATE MMDDYY	FAC 1			INDIRECT COST	PROGRAM LEVEL	NON-CONTRACT	NUMBER OF SERVICES		
			Non-Contract	Contract					Non-Contract	Contract	
1-2 (2)	3	4-9 (6)	10-12 (3)	13-15 (3)		17-25 (9)	26–34 (9)	35-43 (9)	44-45 (2)	46-47 (2)	
	S										

PROGRAM CODE	TYPE COST	REPORT DATE MMDDYY	SERVICE CODE (Left Justify)	FAC 2	CONTRACT COST				UNITS OF SERVICE (Right Justify)
1-2 (2)	3	4-9 (6)	10-12 (3)	13-16 (4)	17-25 (9)				48-53 (6)
	S								

PROGRAM CODE	TYPE COST	REPORT DATE MMDDYY	SERVICE CODE (Left Justify)	FAC 2	CONTRACT COST				UNITS OF SERVICE (Right Justify)
1-2 (2)	3	4-9 (6)	10-12 (3)	13-16 (4)	17-25 (9)				48-53 (6)
	S								

PROGRAM CODE	TYPE COST	REPORT DATE MMDDYY	SERVICE CODE (Left Justify)	FAC 2	CONTRACT COST				UNITS OF SERVICE (Right Justify)
1-2 (2)	3	4-9 (6)	10-12 (3)	13-16 (4)	17-25 (9)				48-53 (6)
	S								

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